WHAT IS CLAIMED IS:

1. A method for preventing hypotension in a mammalian patent whose blood is being withdrawn, treated in an extracorporeal blood circuit and infused into the patient, said method comprising the steps of:

a. monitoring an osmotic pressure level in a blood treatment device in the circuit, and

b. adjusting a rate of removal of fluid through the permeable membrane or filter in the circuit if the osmotic pressure level varies from a predetermined osmotic pressure setting.

2. A method for preventing hypotension as in claim 1 wherein the osmotic pressure setting is a maximum osmotic pressure level.

3. A method for preventing hypotension as in claim 2 wherein the maximum osmotic pressure setting is the sum of a osmotic pressure level determined during an initial phase of treating the blood in the circuit and a predetermined delta osmotic pressure level to the determined initial osmotic pressure.

4. A method for preventing hypotension as in claim 3 wherein the predetermined delta osmotic pressure level is selected by an operator.

5. A method for preventing hypotension as in claim 3 wherein the predetermined delta osmotic pressure level is a level no greater than 20 percent greater than the determined initial osmotic pressure.

6. A method for preventing hypotension as in claim 1 wherein the osmotic pressure setting is selected by an operator.

7. A method for preventing hypotension as in claim 1 wherein the osmotic pressure is determined across a filter membrane of a filter used for fluid removal in the extracorporeal blood circuit.

8. A method for preventing hypotension as in claim 1 wherein the osmotic pressure is determined across a permeable membrane that is part of the extracorporeal blood circuit.

9. A method for preventing hypotension as in claim 1 wherein the osmotic pressure is determined after filtration through the membrane is temporarily stopped followed shortly by temporarily stopping the blood flow.

10. A method for preventing hypotension as in claim 1 wherein the osmotic pressure is monitored while blood flow through the circuit is temporarily stopped.

11. A method for preventing hypotension as in claim 10 wherein the osmotic pressure is monitored during a temporary cessation of filtration of fluids from blood flowing through the blood circuit.

12. A method for preventing hypotension as in claim 10 wherein the osmotic pressure is periodically monitored during a temporary cessation in blood flow through the blood circuit and a temporary cessation of filtrate flow from the circuit.

13. A method of controlling an extracorporeal blood circuit comprising the steps of:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate;

c. measuring osmotic pressure in the circuit;

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

14. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the osmotic pressure is measured while the blood flow through the filter is temporarily ceased.

15. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the osmotic pressure is measured while the blood flow through the filter and the removal of fluids from the blood are temporarily ceased.

16. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the osmotic pressure is measured in a section of the circuit in which blood flow has been temporarily stopped.

17. A method of controlling an extracorporeal blood circuit as in claim 16 wherein the section of the circuit is isolated from a section of the circuit withdrawing blood from the patient while the blood flow is temporarily stopped.

18. A method of controlling an extracorporeal blood circuit as in claim 16 wherein the section of the circuit is isolated from a section of the circuit withdrawing blood from the patient while the blood flow is temporarily stopped.

19. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle and the filtration rate is reduced by increasing the portion of the duty cycle during which filtration is stopped.

20. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle, and the filtration

rate is reduced by increasing the portion of the duty cycle during which filtration is stopped.

21. A method of controlling an extracorporeal blood circuit as in claim 13 wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle, and the filtration rate is reduced by reducing the frequency of the duty cycle.

22. A system for treating blood from a patient comprising:

an extracorporeal circuit having a blood passage including a blood withdrawal tube, a filter and an infusion tube,

said filter having filter blood passage in fluid communication with the withdrawal tube, a blood outlet in fluid communication with the infusion tube, a filter membrane in fluid communication with the blood passage, a filter output section on a side of the membrane opposite to the blood passage, and a filtrate output line in fluid communication with the filter output section;

a pressure sensor coupled to said extracorporeal circuit and generating a pressure signal indicative of the osmotic pressure across the filter membrane;

a filtrate pump coupled to the filtrate output line and adapted to draw filtrate fluid from the filter at a controlled filtration rate, and

a filtrate pump controller regulating the controlled filtration rate based on osmotic pressure at the membrane

23. A system as in claim 22 wherein the filtrate pump controller includes a processor and a memory storing a control algorithm to determine whether an osmotic pressure threshold is exceeded by the osmotic pressure determined from the pressure signal, said controller reducing the controlled filtration if the osmotic pressure exceeds the osmotic pressure threshold.

24. A system as in claim 22 wherein the osmotic pressure threshold is a set by an operator prior to treating blood.

25. A system as in claim 22 wherein the osmotic pressure threshold is determined based on a sum of an osmotic pressure level obtained during an initial phase of a treatment of the patient and a predetermined osmotic pressure difference.

26. A system as in claim 22 wherein the filter is a hemofilter.

27. A system as in claim 22 wherein the treatment device is a dialysis filter.

28. A system as in claim 22 wherein the treatment device is an ultrafiltration filter.

29. A system as in claim 22 further comprising an osmotic pressure sensing device separated from the therapeutic blood filter, wherein said pressure sensor determines an osmotic pressure in the osmotic pressure sensing device.

30. A system as in claim 22 wherein the pressure sensor comprises a pressure sensor in the blood withdrawal or return tube and a pressure sensor in the filtrate line.

31. A system as in claim 22 wherein the pressure sensor is a deferential sensor measuring difference between blood pressure and filtrate pressure.